

The Relationship Between Online Service Quality With Customer Satisfaction And Loyalty In E-Commerce Transactions With Local Agricultural Specialties

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Abstract: This article examined the relationship between online service quality and customer satisfaction, between customer satisfaction for special agricultural products and customer loyalty to the brands of products and companies. Seven factors related to online service quality were identified that have a positive impact on customer satisfaction: information quality, product quality, product cost, website quality, and capacity of delivery, customer service and system responsiveness. Research results have also demonstrated a close relationship between level of customer satisfaction and customer loyalty. From there, the article proposed specific recommendations to further improve customer satisfaction for special agricultural products provided via the e-commerce transaction system to Vietnamese consumers.

Keywords: customer satisfaction, loyalty, service quality, agricultural products.

I. INTRODUCTIONS

E-commerce and online payment transactions are growing very dynamically in Vietnam. This trend occurs not only for services and FMCG products but also for traditional products such as agriculture, forestry, fishery and seafood. At this rate, it won't be long before the e-commerce market (online business) outstrips the traditional business market in both the size and variety of items and types of transactions. With trends occurring with increasing intensity and rapidity, it is extremely necessary to study customer satisfaction and loyalty in the network business environment in order to understand and identify potential problems related to service quality factors in a bid to improve customers' satisfaction and retention in the context of increasingly fierce business environment of the Vietnam's market which is

very globally oriented and open to all foreign business entities and other new economic sectors to mark their to compete side by side to improve service quality for the purpose of stronger integration and development.

Research subjects in this article are customers who have ever visited or had made any transactions with electronic trading floors for products that are Vietnames agricultural specialties. The subjects of the study belong to many different backgrounds in terms of age, gender, income level, education level and came from different regions of the country. The scope of research time and space covers from February 2022 to May 2022 across the entire Vietnamese market.

Objectives of the study are as follows:

The first objective is to synthesize and systematize the theoretical framework (the

concepts and related so far studies) related to the research topics.

The second goal of the article is to conduct a full scale empirical research to identify and to test 7 hypotheses related to the direction and extent of the impact of factors important for the online service quality that have significant influences on customers' satisfaction and thereby also on customers' loyalty to the specific agricultural products of Vietnam.

The third objective is based on the obtained results of empirical research conducted here in this study to provide recommendations and solutions for all parties to help overcome difficulties and confront challenges in the process of online business development in Vietnam is not only limited to agricultural products but also extended for other industries and fields.

This article belongs to the research category and therefore the content of its consists of 5 main chapters set in the following order: Introduction, Theoretical background, Research methods, Research results, Conclusions and recommendations. With the objectives and content presented above, the article contributes both theoretically and practically through synthesizing conceptual frameworks and so far research works related to issues such as service quality online, customer satisfaction and loyalty; empirical research on online business of special agricultural products specific for Vietnamese market. Since then, despite certain limitations, the article has made many practical and useful recommendations for those who benefit from the strong development of this online business model.

2. OVERVIEW OF THEORETICAL BASIS

2.1. Quality online service

Gronross (1984) said that quality service is the comparison between the value that customers expect before using the service with the value that they receive when using the service. Meanwhile, Parasuraman et al. (1988) define quality service as the gap between customers' expectations and their perceptions when using the service. According to Kumar. et al. (2012), quality service is an important approach in business to bring satisfaction and to improve the competitiveness and efficiency of the industry.

Today, with the popularity of Internet and information technology, the development trend of electronic network services is further accelerated. Therefore, under the background of the network, more and more scholars began to pay attention to the study of online service quality. Zeithaml first defined electronic service quality (e-SQ) as the level of service that online businesses provide to ensure that customers can easily and efficiently select, purchase and deliver products from the website (Zeithaml et al., 2000) Currently, scholars studying online service quality mainly refer to the website quality affecting customer satisfaction (Loiacono et al., 2000; Zeithaml et al., 2000, 2002; Barnes & Vidgen, 2002; Wolfinbarger & Gilly, 2003) Besides website quality, some studies such as Szymanski & Hise (2000); Wolfinbarger & Gilly (2003) suggest that it is also related to the product quality, security, delivery, and transaction capabilities.

According to Parasuraman, information service quality includes 04 components such as efficiency in transactions; fulfillment of delivery, product availability; technical functionality of the website and customer privacy (Parasuraman et al., 2005). Thong and Trang (2013) have identified 04 groups of quality service components affecting online shopping customer satisfaction including: price of products, diversity of categories and

brands, quality of information on customers, product quality and delivery. In addition, Hu, Chen & Zhang, (2021) argue that online service quality consists of 3 main components: implementation process, service performance results and customer care. Although the name may be different from the name of some previous studies, the content measuring the quality of these 3 services is the measures of service quality related to such issues as the quality of the website, the security and responsiveness of the website, the quality of products, the quality of payment services, delivery and other services including customer care.

2.2. Customer satisfaction

According to Kotler (2001), customer satisfaction is the level of a person's sensory state resulting from a comparison of the results obtained from the consumption of a product/service and his or her expectations. Expectations are considered as human wishes or expectations, derived from personal needs, previous experiences and external information such as advertising, word of mouth information from family and friends. Customer satisfaction is seen as a comparison between expectations before and after purchasing a product or service. On that basis, Kotler identifies three levels of satisfaction: (1) If the results received are less than expected, the customer will feel dissatisfied; (2) If the result is as expected, the customer will feel satisfied; (3) If the results received exceed the customer's expectations, they will feel oversatisfied with the service. Customer satisfaction is the combined result of service quality, product quality and price (Parasuraman, 1994), which is a psychological state that leads to the expectations about products and services before they buy (Oliver et al., 1997). In addition, consumers' perceptions of the convenience of online shopping (products offered and product

information), website design, and security play important roles in satisfaction ratings on online shopping (Szymanski and Hise, 2000). According to research by Guo et al. (2012), customer satisfaction is due to the influence of website design, security, information quality, payment methods, quality of electronic services, product quality, variety of delivery products and services. Measuring customers' satisfaction is very important for businesses because product/ service satisfaction will influence their decisions whether to continue using products/services again or not.

In addition, customers are satisfied when they receive performance that corresponds to their needs and expectations (Lovelock & Wirtz, 2011). This satisfaction builds loyalty, which eventually leads to repeated purchases. Several studies confirm that customer satisfaction also leads to customer loyalty (Resti & Soesanto, 2016; Sondakh, 2015; Rahyuda & Atmaja, 2011; Chao et al., 2015).

2.3 Customer loyalty

Currently, there are many studies on the concept of customer loyalty and often follow the following angles. From a behavioral perspective, Anderson and Sullivan believe that customer loyalty is a form of repurchase behavior by customers (Anderson & Sullivan, 1993). Hurriyati (2005) explains that one of the characteristics of loyalty is that customers make frequent purchases. Haghkhan et al. (2020) argue that a loyal customer is a customer willing to pay more for a product or service and free word of mouth marketing for the product. Gremler and Brown (1996) define loyalty as the frequency with which customers repeatedly repurchase products from a business with a positive attitude, and when there is a need to repurchase, they will continue to choose the original business. From an attitude perspective, Shankar found that loyal consumers have a willingness to consume and

are not easily persuaded by others, they are more willing to recommend products and services to others (Shankar et al., 2003).

It is now easy for academia to consider a combination of attitudes and behaviors to explain customer loyalty in which the main representative views are as follows. Dick and Basu have shown that customer loyalty is determined by the positive purchasing attitude and continuous buying behavior of consumers (Dick & Basu, 1994). Oliver (2014) believes that loyalty is the strong will and commitment of consumers in the long-term purchasing process and in choosing their favorite products and services, as well as repeated purchasing behavior. Ma and Zhang point out that customer loyalty refers to the dependence of customers when they buy products and services (Ma & Zhang, 2003). Loyal customers will have a preferred attitude and will buy again and again, and will actively promote and recommend the business and brand. In other words, customer loyalty is the sum of all attitudes and behaviors (Ma & Zhang, 2003). In addition, loyalty is not only reflected in the loyalty behavior of repeated purchases, but also includes a loyal positive attitude towards a certain product and brand (Kandampully et al., 2015).

Based on the above arguments and applied to the situation of the study, we believe that customer loyalty in purchasing local specialty agricultural products is an attitude of preference and frequent use of these products on an e-commerce platform for agricultural products.

3. RESEARCH METHODS

3.1. Research models

Many studies have been carried out to develop and propose scales suitable for the context of online service quality. Most research models are developed from the SERVQUAL model, especially the E-SQ model of Parasuraman (Parasuraman et al., 2005). This model has covered most of the scale components in studies such as: Reliability, Responsiveness, Access, Flexibility, Ease of use (Ease of navigation), Efficiency (Effectiveness), Trust (Assurance), Safety (Security/Privacy), Price, Website's Aesthetics, Layout according to customer needs (Customization/Personalization).

Parasuraman et al. (2005) re-analyzed the components of the scale and separated the components into 2 independent models. The first model is the ES model consisting of 4 components: (1) Efficiency, (2) Commitment, (3) System availability, (4) Privacy. The second is the E-ReS-Qual model which consists of 3 components: (1) Responsiveness, (2) Compensation, (3) Contact. This model is quite general about the quality of online retail than is the quality model of Wolfinbarger and Gilly's EtailQ on retail sales volume (Wolfinbarger & Gilly, 2003), consisting of 4 main components: reliability, web design, security, and customer service, in addition to the contents of the four components. This also contains all the scales in ES Qual, E-ReS Qual above.

Based on the analysis results of the above studies, we propose the model of the study as follows:

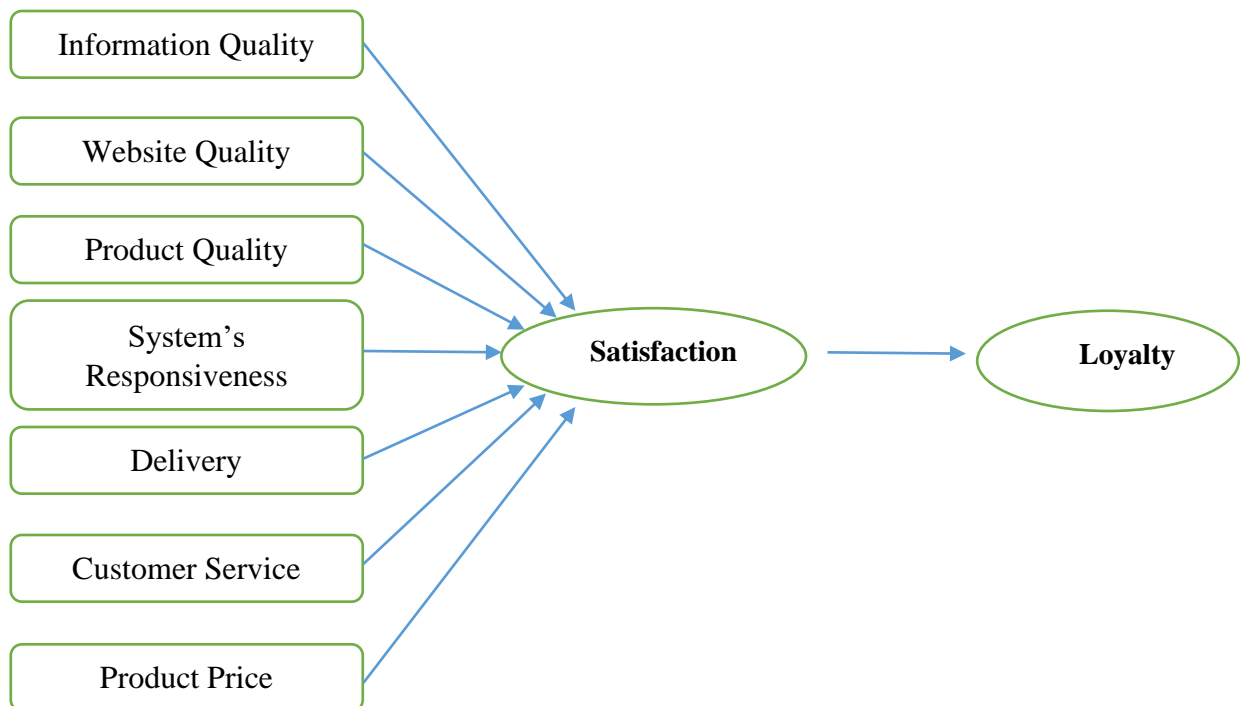


Figure 1. Research model

Source: Authors

3.2. Research hypothesis

Quality of Information (QI)

Information quality addresses e-commerce content issues and includes completeness, accuracy, format and currency aspects of information provided by e-commerce marketplaces. (Wixom & Todd, 2005). It measures the desired characteristics of an e-commerce website. In general, it also covers the reliability, flexibility, integration, accessibility and timeliness of the e-commerce system. The quality of online information of an e-commerce website can be viewed from many aspects, such as system quality, product quality, quality of suppliers, quality of software and services, system design, quality of human-computer interaction, etc. In e-commerce, the quality of information greatly affects customer satisfaction on information services, related to website information, product information, and price information to

help reduce searching costs (Bakos, 1997). High-quality online information leads to high levels of customer satisfaction (Peterson et al., 1997; Liu et al., 2008; Guo et al., 2012). Therefore, the quality of information is considered as a very important factor affecting customer satisfaction about information services.

Hypothesis 1 (H1): Information quality has a positive relationship with customer satisfaction when purchasing local specialty agricultural products.

Product Quality (QP)

Product quality is the customer's perception of the product's features and benefits for their needs. A product is said to have quality when it meets the needs and expectations of the customer. According to Juran (1959), product quality is its suitability for use. Mohr-Jackson (1998) said that quality is the conformity of

product characteristics to customer needs. Product quality is an important attribute for product evaluation (Shetty, 1987), which is essential for creating value for buyer-seller relationships. In addition, when a supplier sells quality products and is able to meet delivery commitments, it positively affects relationship quality and business performance (Chen et al., 2017). In online shopping, customers cannot directly check the quality of products before purchasing. Therefore, product quality plays a very important role in consumer loyalty and repurchase decision.

Hypothesis 2 (H2): Quality of local specialty agricultural products (QP) has a positive relationship with customer satisfaction

Product price (PP)

Several previous literatures have described price as an important factor for customer satisfaction, due to the fact that consumers always direct their attention to price when evaluating product value and services (Zeithaml, 1988; Fornell, 1992; Cronin et al., 2000). From the consumer's point of view, price is what is paid or determined to obtain a product (Zeithaml, 1988). Several studies have determined that price is significantly related to customer satisfaction (Jiang & Rosenbloom, 2005). Price directly affects the perception of value delivered and the usability of the transaction, and thus, customer satisfaction (Kim et al., 2012). Price has a particular influence on customer satisfaction with online shopping experiences (Dillon & Reif, 2004; Jiradilok et al., 2014). In online shopping, the customer cannot see or check the product; therefore, they are not sure that the product delivered is the same as the product on the website. Therefore, price perception has a more important role (Jarvenpaa & Todd, 1996; Liu & Arnett, 2000). As online stores offer consumers a wide variety of products and services, consumers can compare product

prices from different websites and find products at lower prices (Lim & Dubinsky, 2004). Thus, it can be seen that price is a very important factor in online shopping, as well as customer satisfaction. In this study, we expect the price of local agricultural specialties to have a positive relationship with customer satisfaction.

Hypothesis 3 (H3): Price (PP) has a positive relationship with customer satisfaction.

Quality of Website (QW)

A company's website plays a very important role in the quality of online services, it affects throughout the shopping process of customers, making it easy for them to find information (Kim & Stoel, 2004). If the website is informative and well organized, it is easier to attract customers to buy online (Wolfenbarger & Gilly, 2001). The quality of the website service is determined by the consumer's perception of the service level when browsing the website, ordering, paying, or interacting with the online store (Lin, 2007; Sharma & Lijuan, 2015; Vida & Jonas, 2011). A website must have a creative and attractive design with relevant content, allowing users to trust and interact effectively with the sellers (Gefen & Straub, 2000). Well-designed websites reduce the time for customers to find and avoid inappropriate information (Luo, Ba & Zhang, 2012). Thus, website quality is considered an important factor affecting customer satisfaction.

Hypothesis 4 (H4): Web quality has a positive relationship with customer satisfaction.

Delivery way (DS)

In today's competitive environment, the way to deliver goods to consumers will increase customer satisfaction. Time and delivery methods are very concerned by buyers such as problems of delayed delivery, unpackaged or damaged goods (Forsythe et al., 2006),

untimely delivery, incurring shipping charges, incorrect products ordered (Information & Pages, 2013). Therefore, this is also a factor affecting customer satisfaction. The packing of goods to ensure quality and safety during transportation is very interested by customers. Other issues such as time (on-time delivery, on-time appointment) and employees' attitude towards customers will greatly affect their satisfaction (Lykogiannis, 2014; Ayele et al., 2020). In addition, Ho and Wu (1999) found that logistics specifications are the most important factor in determining customer satisfaction in e-business. These characteristics include on-time delivery, after-service repair, warranties and returns (Ho and Wu (1999). In this study we expect logistics operations to be performed also in post-purchase services such as shipping, tracking and returns that are positively related to customer satisfaction.

System response (ES)

According to the study of Islam (2011), the responsiveness of the technology system is confirmed to have a relationship with satisfaction. The satisfaction and responsiveness of the system are combined into attributes to promote the electronic technology application model (ETAM) (Islam, 2011). Several previous studies have scrutinized the relationship between technology system responsiveness and intention to use (Wu et al., 2008; Ahmad et al., 2010). Much empirical evidence has shown a causal link between technological responsiveness and perceived self-satisfaction (Luarn and Lin, 2005; Jeong and Yoon, 2013; Sripalawat et al., 2011). In e-commerce one of the advantages of buying online over in-store purchases is the ability to transact. Specifically, customers shopping online can save a lot of travel time. Whether at home, at the company, or at any location, at any time they can view product information and order.

In addition, if the speed of accessing the online sales website is fast and the transactions are smooth, customers will be satisfied when using this website. On the contrary, if the website works slowly, customers become frustrated, dissatisfied with this website and will not visit this online sales website anymore (Trang, 2014).

Another aspect of responsiveness is security, which can become one of the main barriers to a customer's purchase, as personal or financial data may be disclosed and used for fraudulent activities (Kalakota & Whinston, 1997). Consumers can refuse to use the service when they perceive the technology system to be unreliable (Abd Ghani et al., 2017). Users and business environments will accept highly secure systems, easy access and reliable payment infrastructure (Roozbahani et al., 2015). Based on that, the study hypothesized the following:

Hypothesis 6 (H6): Good responsiveness of the system has a positive relationship with customer satisfaction

Customer Service (CS)

The role of customer service is often used broadly to include many aspects of service, such as salesperson service in product selection and assistance, problem solving, answers to frequently asked questions through e-mail and other channels, distribute desired information, complete payment transactions, and logistics-related activities (such as processing returns) (Zeithaml et al., 2002; Park & Kim, 2003). This study separates logistics activities (return, shipping and tracking) from other customer service activities including service promptness, ease of access, and engagement quality. Norizan and Abdullah (2010) found that perceived customer service quality has a significant impact on customer satisfaction, which in turn affects future purchase intentions of customers. Reibstein (2002) reported that

after-sales customer support is one of the key factors leading to customer satisfaction. More specifically, some activities are considered very important to a good e-commerce company and they ensure the company's success in the e-business environment. These activities include promptness in responding to customer inquiries about complaints, accessibility of services, and perceptions of service quality received (Hsu, 2008; Liu et al., 2008). In this study we expect that customer service has a positive impact on customer satisfaction.

Hypothesis 7 (H7): Customer service has a positive relationship with customer satisfaction

Satisfaction (SA)

If customers have had a good previous experience with products and services, they are likely to be satisfied (Lovelock & Wirtz, 2004). This satisfaction builds loyalty, which eventually leads to repeated purchases. Several studies confirm that customer satisfaction also leads to customer loyalty (Resti & Soesanto,

2016; Sondakh, 2015; Rahyuda & Atmaja, 2011; Chao et al., 2015). Ratih (2005) explains that one of the characteristics of loyal customers is frequent purchases. Several other studies unequivocally demonstrate that customer satisfaction has a significant effect on repeat purchase intention (Resti & Soesanto, 2016; Hidayat, 2009; Shafiq, 2012). Based on the above empirical studies, our hypothesis is: Hypothesis 8 (H8): Satisfaction has a positive relationship with customer loyalty

3.3. Research data

To carry out the research, we conducted an online survey with all customers who visited websites specializing in providing local agricultural specialties between February 2022 and May 2022. As a result, we obtained a sample of 845 subjects who agreed to participate in the survey. After removing a number of unqualified votes, we obtained a sample of 720 subjects with the following characteristics:

Table 1. Survey sample characteristics

	Characteristics	Amount	Ratio %
Age	>25	143	19.9%
	25 – 35	291	40.4%
	36 – 45	158	21.9%
	>45	128	17.8%
Sex	Female	469	65.1%
	Male	251	34.9%
Income	<10 million	182	25.3%
	10 -15	235	32.6%
	> 15 million	303	42.1%
Education	High School	119	16.5%
	TC - College	312	43.3%
	UNIVERSITY - UNIVERSITY	289	40.1%
Living area	Other	233	32.4%
	Economic center or big city	487	67.6%

Source: the authors'

The above table describes in detail about the

survey sample consisting of 720 subjects who

are customers who have purchased goods or visited websites. The analysis results show that customers are mainly female (65.1%) and are living in economic centers or big cities (67.6%), the age group is mainly from 25 to 45 years old (62.3%), with 80% of education is secondary school or higher, income of 400USD per month or more accounts for 74.7%.

3.4. Methods of processing and analyzing data

Data collected was assessed using CMB-Common, method. The reliability of the scale was analyzed by Cronbach's Alpha coefficient and the exploratory factor analysis (EFA). Then the data was analyzed for confirmatory factor analysis (CFA) to measure the relevance, test the reliability, testing the convergence and the discriminant by variance in Model Validity Measures, measuring the impact of factors on satisfaction and satisfaction on loyalty using SEM model,

testing the model's fit with market data using Bootstrap. Besides, we also examine the impact of customer characteristics on satisfaction and loyalty through t test and Anova, with the support of IBM SPSS 25 and AMOS 24 software.

4. RESEARCH RESULTS

4.1. CMB test results

For research using online survey method to collect information, it may lead to inflated or misleading data which will falsify the results Podsakoff (2003). To test common method bias (CMB) authors use Harman's single-factor analysis in which all items (measures of latent variables) are loaded into a common factor. If the total variance for a single factor is less than 50%, it indicates that CMB has no effect on the data. The results of the single-factor analysis showed that the total % variance = 32.157% < 50%, so the collected data is guaranteed (table 2).

Table 2. CMB test

Total Variance Explained						
Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
first	13.469	33,673	33,673	12,863	32.157	32.157
2	3.566	8,915	42,588			

Source: Authors' calculations.

4.2 Testing the reliability of the scale and exploratory factor analysis

Check the reliability of the ladder measured by Cronbach's Alpha

According to Hoang Trong and Chu Nguyen Mong Ngoc (2008), if Cronbach's Alpha coefficient is from 0.8 to 1 then the scale is good, if from 0.7 to 0.8 then the scale can be used. Cronbach's Alpha coefficient from 0.6 or

more can be considered to use in new research context. Measuring scale used must have a total correlation coefficient (Corrected Item - Total Correlation) of 0.3 or more (Hair et al., 2010). The results of the scales reliability analysis (table 3) with calculated values guarantee that they are good and reliable.

Table 3. Reliability of the scale

The scale	Item-Total Correlation	Cronbach's Alpha
SP Quality Scale		0.863
Products that meet food hygiene and safety standards	0.604	0.854
Products with barcodes for traceability	0.579	0.859
Products are always fresh, ensuring unique flavor	0.772	0.811
Beautiful, attractive form	0.677	0.836
Rich and versatile products	0.785	0.807
Information quality scale		0.891
The product information is clear, not exaggerated	0.655	0.880
The payment related information is detailed and easy to follow.	0.731	0.868
Privacy policies, specific delivery, do not misunderstand	0.773	0.861
Provide a full range of safety certifications, product origin	0.688	0.875
The recommendations and instructions are complete and easy to find	0.731	0.868
The content of user reviews is accurate	0.675	0.877
Web quality scale		0.882
Beautiful, eye-catching pictures, complete information	0.810	0.826
Scientifically presented content	0.726	0.857
Fast speed, simple operation	0.786	0.835
Bringing a sense of trust and professionalism	0.676	0.878
Product price scale		0.874
Products are listed clearly and in detail	0.670	0.862
Products with lower prices than similar products on the market	0.781	0.820
There are many promotions and discounts	0.760	0.828
Loyalty policy with many incentives	0.717	0.845
System response scale		0.910
Products are always ready to meet	0.649	0.909
Fast order processing speed	0.807	0.878
Do not use user information	0.805	0.878
Process security is guaranteed	0.786	0.882
There are many transaction methods	0.785	0.882
Shipping scale (forwarding)		0.916
Enthusiastic and friendly delivery staff	0.760	0.897
Goods are well preserved, quality assurance when delivered	0.868	0.875
On time delivery	0.856	0.877
Have an order tracking system	0.745	0.900
There are many delivery methods to choose from (superfast, fast, economical)	0.674	0.916
Customer service scale		0.863
Quick and complete response reply	0.810	0.803

Quick response team	0.703	0.830
The attitude and style of the professional and friendly consulting team	0.690	0.836
Return policy, troubleshooting brings peace of mind	0.619	0.850
There are new user support services, regular customer care	0.645	0.853
Satisfaction scale		0.913
I feel secure when using services and products	0.837	0.869
I feel that the products I received are as expected	0.800	0.910
Buying products through this website is a pleasant experience	0.860	0.851
Loyalty scale		0.921
I will continue to buy products here if there is a need	0.833	0.859
I am very confident when buying products through this website	0.887	0.815
I will recommend this website to all my friends and family	0.744	0.919

Source: Author's calculations

Exploratory factor analysis (EFA)

Using exploratory analysis to measure the reliability of the scale through the convergence and discriminant of the observed variables, thereby considering whether the input variables have a good explanation for the

overall variables or not.

Requirements in EFA analysis: KMO coefficient > 0.5 and sig value < 0.05; Total % variance extracted of the generated factors > 50%; Coefficient of loading factors > 0.5.

Table 4. EFA analysis results

Test value in EFA	Value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.917
Sig.	0.000
Cumulative %	64,218
Factor Loading	>0.5

Source: Author's calculations

The results of factor analysis (table 4) showed that the KMO coefficient in Bartlett's test = 0.771 > 0.5; and its significance level (Sig < 0.001), so the exploratory factor analysis method is suitable. Besides, the total variance extracted (Cumulative %) > 50% and the factor loading coefficient of each observed variable are > 0.5, so the scale ensures the appropriateness through the EFA assessment.

4.3. Confirmatory factor analysis CFA

According to Hair et al. (2010), the fit of the model to the market data gives us the necessary and sufficient conditions for the set of observed variables to achieve unidirectionality, except in the case of errors of the related observable variables. The model is considered appropriate to market data if the Chi-square test has P-value > 0.05; CMIN/df = < 3, in some cases CMIN/df can be = < 4; GFI, TLI, CFI >= 0.9; and RMSEA = < 0.08. However, in the recent opinion of researchers, GFI is still acceptable in the range of 0.8-0.9 (Hair et al., 2010).

FQI	0.89	0.57	0.12	0.89	0.76†						
FDS	0.91	0.68	0.21	0.95	0.13 **	0.83†					
FES	0.90	0.64	0.20	0.91	0.19 ***	0.41 ***	0.80†				
FQP	0.86	0.57	0.26	0.89	0.27** *	0.34 ***	0.309** *	0.756			
FCS	0.86	0.56	0.31	0.91	0.35 ***	0.39 ***	0.383** *	0.37** *	0.750 †		
FPP	0.87	0.64	0.28	0.88	0.23 ***	0.35 ***	0.364** *	0.31** *	0.46 ***	0.80†	
FQW	0.88	0.66	0.31	0.90	0.34 ***	0.46 ***	0.45***	0.51 ***	0.55 ***	0.53** *	0.81†

Note: FQW is web quality, FPP is product price, FCS is customer service, FQP is product quality, FES is system responsiveness, FDS is forwarding (delivery), FQI is information quality, CR is composite confidence, AVE is convergence, MSV, discriminant, † is SRTAVE, ** is significance <1%, *** significance level is <0.1%

Source: Author's calculations

The analysis results show that all the validity measures in the CFA analysis are valid.

4.4. Regression analysis and model fit test SEM analysis results

The study uses SEM (Structural Equation

Modeling) to conduct regression model of the impact of online service quality on customer satisfaction and the model of the impact of satisfaction on loyalty of customer. The model and analysis results are shown in detail in figure 3 and table 6 below.

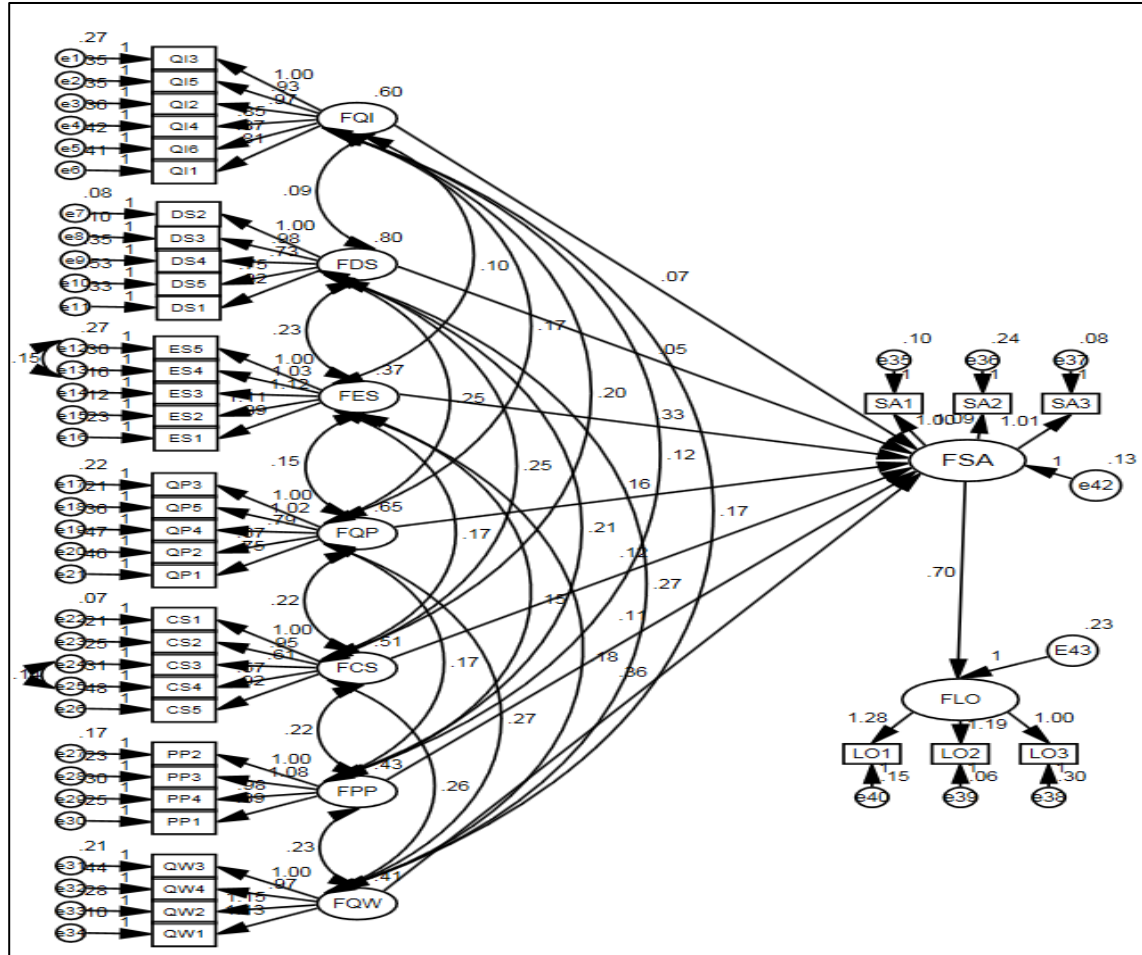


Figure 3 SEM model

Source: Authors'

Note: FQW is web quality, FPP is product price, FCS is customer service, FQP is product quality, FES is system responsiveness, FDS is

forwarding (delivery), FQI is information quality, FSA is satisfaction, FLO is loyalty.

Table 6. Synthetic results of SEM

Dependent variable	R2	Independent variables	Beta	Normalized Beta	t	P
Satisfaction	0.73	Information quality	0.07	0.07	2.76	0.006
		Delivery	0.05	0.06	2.09	0.037
		System response	0.33	0.29	9.49	<0.001
		Product quality	0.16	0.19	6.21	<0.001
		Customer service	0.12	0.13	3.94	<0.001
		Product price	0.11	0.10	3.33	<0.001
		Website quality	0.36	0.33	8.62	<0.001

Loyalty	0.49	Satisfaction	0.70	0.70	18.43	<0.001
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Source: Author's calculations

The analysis results show that in the regression model on the relationship of service quality to customer satisfaction, there are 7 variables that make up the model: Information quality; Delivery; System response; Product quality; Customer service; Product price; Website quality. All these variables have a statistically significant impact in the model. Besides, the sign of these variables are all positive, which means that when the quality of these services increases, it will increase customer satisfaction. Among the factors mentioned above, website quality and system responsiveness are the two factors that have the strongest impact on customer satisfaction when participating in online transactions and experiences of local agricultural specialties with an impact coefficient of 0.33 and 0.36, respectively. Next are factors such as price, product quality, customer service, these factors have an impact level ranging from 0.11 to 0.16, the remaining factors such as delivery and information quality have a lower impact level (0.05 and 0.07). Besides, the coefficient $R^2 = 0.73$ means that these variables explain 73% of the change in satisfaction. With this result, we can conclude that the variables

in the components of the service quality that the research has included are the main factors in explaining customer satisfaction.

In the impact model of customer satisfaction with loyalty, our research results record a relatively strong and significant relationship between customer satisfaction and customer loyalty. This satisfaction has an impact coefficient of 0.7 and has a positive sign, which means that when satisfaction increases by 1 unit, customer loyalty will increase by 0.7 units.

Bootstrap test

The Bootstrap test helps evaluate the reliability of the estimates in the evaluation model. The study conducted a regression with 500 replicated samples with replacement and then compared the bias of the regression coefficient in the theoretical model with the mean of the estimated coefficient of bootstrap. The analytical results show that the critical value of the bias corresponding to the significance level of 5% (Cr_P) of these two methods is < 1.96 , so there is no difference in the coefficients of these two methods. Thus, the theoretical model built is consistent with the market data.

Table 7. Results of the bootstrap test.

DEPENDENT VARIABLE	INDEPENDENT WAREHOUSE		SE	Mean	Bias	SE-Bias	CR-P
Satisfaction	Information quality		0.027	0.072	-0.002	0.002	1.00
	Delivery		0.029	0.06	0.001	0.002	0.50
	System response		0.04	0.296	0.004	0.003	1.33
	Product quality		0.029	0.184	-0.002	0.002	1.00
	Customer service		0.043	0.127	0.001	0.003	0.33
	Product price		0.034	0.1	-0.003	0.002	1.50
	Web quality		0.046	0.334	0	0.003	-
Loyalty	Satisfaction		0.034	0.705	0.003	0.002	1.50

Source: Author's calculations

The relationship between customer characteristics and satisfaction and loyalty

To evaluate the relationship of customer characteristics with loyalty and satisfaction when participating in online experiences or

transactions of local agricultural specialties this research used t test and Anova. If the results of analysis with $p.value < 0.05$, there is a relationship, otherwise there is no relationship.

Table 8. Results of t test and Anova analysis

Features	Satisfaction		Loyalty	
	Level	P. value	Level	P. value
Sex				
Female	3.73	0.67	3.39	0.64
Male	3.70		3.44	
Age				
Under 25	3.79	0.06	3.45	0.45
25 to 35	3.75		3.42	
35 to 45	3.58		3.31	
Over 45	3.72		3.42	
Education				
High School	4.00	>0.001	3.48	>0.001
TC-CD	3.94		3.64	
University, College	3.36		3.12	
Income				
Less than 10	3.97	>0.001	3.63	>0.001
From 10 to 20	3.76		3.44	
Over 20	3.53		3.25	
Area				
Other	3.86	>0.001	3.53	>0.001
Economic center or big city	3.42		3.15	

Source: Author's calculations

The analysis results show that customer satisfaction and loyalty when dealing with local agricultural specialties is no difference by age or gender, in other words loyalty or satisfaction among men and women or between different age groups is the same. Meanwhile, education, income and living area have a statistically significant relationship with the satisfaction and loyalty. Specifically, people high education and high income have a lower level of satisfaction and loyalty

evaluation than people with lower income or lower education. Customers living in big cities or economic centers have a higher level of satisfaction than customer live in other regions.

With this result, we believe that big cities or economic centers will have a developed transport system so the problems of delivery are quickly resolved, meeting all expectations of buyers, making them happy and feel more satisfied. In addition, e-commerce is not a strange problem in big cities

because people there have a lot of knowledge and experience to be able to make transactions easily. However, for people with high education, or high income, their requirements are also higher as well as their own standards, expectations, and more needs to be done to uplevel to guarantee their satisfaction. It is the reason that makes their satisfaction rating lower than others.

4.5. Research results discussion

Relationship of satisfaction with customer loyalty

Our research shows that satisfaction has a positive impact on loyalty, this research result is similar to many previous studies such as (Lovelock & Wirtz, 2004; Resti & Soesanto, 2016; Sondakh, 2015; Rahyuda & Atmaja, 2011; Chao et al., 2015). To explain this problem, we believe that local agricultural specialties, in addition to their inherent uses, also have spiritual, cultural, and customs values. So in addition to buying for themselves, these products are also often used as gifts to friends and relatives. So, when customers feel satisfied, they will definitely buy it again as gifts or introduce to acquaintances as a form of word of mouth advertising.

System's response to satisfaction

The responsiveness of the system is the ability to meet the necessary requirements in e-commerce. Our research shows that the responsiveness of the system is one of the most important factors creating customer satisfaction, our research results are similar to previous studies such as: Islam (2011); Wu et al., (2008); Ahmad et al., (2010); Luarn and Lin (2005); Jeong and Yoon (2013); Sripalawat et al. (2011). Besides, Roozbahani et al (2015) believe that users and business environment will accept highly secured systems, easy accessibility and reliable payment infrastructure.

In this study, we consider the response of the system in two aspects: product response (multiple and available products), payment and transaction response (fastness, convenience and security). In these aspects, we believe that if an online service system is guaranteed, it will create a sense of professionalism, trust and peace of mind for customers, thereby forming customer satisfaction. In contrast, a system where products are monotonous, unavailable, difficult to pay, and insecure will result in an unfriendly customer experience that prevents customers from returning.

Website quality to satisfaction

Website quality is also one of the most important factors driving customer satisfaction in e-commerce for agricultural specialties. Our research results are also found in a number of studies such as: Lin, (2007); Sharma and Lijuan (2015); Vida and Jonas, (2011); Wolfenbarger and Gilly (2001); Kim and Stoel (2004). Kim and Stoel (2004) said that a company's website plays a very important role in the quality of online services, it affects throughout the shopping process of customers, making it easy for them to find information. In this study, we believe that a website that is considered quality will help customers realize the benefits of receiving information directly from the Website without consulting the seller, helping customers reduce costs. Searching for information, especially product-related information, scientifically arranged information is easy to attract customers to buy online, all these bring interesting experiences to customers. customers thereby increasing customer satisfaction.

Delivery with satisfaction

Our research results show that delivery has a positive impact on customer satisfaction. With this result, we believe that in today's competitive environment, the time and way of

delivery are very concerned by buyers such as problems of delayed delivery, goods not packed carefully, damaged goods, etc. damaged, the way of delivery to consumers will increase customer satisfaction. This point of view has also been mentioned by some other scholars such as Thong & Trang, (2013); Forsythe et al. (2006), the authors believe that the packing of goods firmly to ensure quality and safety during transportation is of great interest to customers. Other issues such as time (on-time delivery, on-time appointment) and employees' attitude towards customers will greatly affect their satisfaction (Lykogiannis, 2014; Ayele et al., 2020).

Product price with satisfaction

Our research results show that product price has a positive impact on customer satisfaction, our results are similar to many studies of previous scholars such as Dillon and Reif (2004); Jiradilok et al., (2014); Jarvenpaa and Todd, (1996); Liu and Arnett, (2000). To explain this problem, the study said that today, when e-commerce thrives, finding a local specialty agricultural product is not difficult to measure for an e-commerce web of these products. Products that are sold at a reasonable price can be the first factor that attracts customer engagement. When consumers can compare product prices from different websites and find products with lower prices then they will attract customers to experience and transact.

Product quality with satisfaction

In this study, product quality has a negative impact on customer satisfaction. Previous studies have shown that customers will be satisfied when the product meets their initial expectations. (Oliver, 1997; Tse & Wilton, 1988; Kotler, 2001). According to Shetty (1987), product quality is an important attribute for product evaluation, which is

essential to create value for buyer-seller relationships. However, in e-commerce, buyers cannot directly check product quality before buying. Therefore, they only feel through the information and images posted by the website. Therefore, if product quality meets customer expectations, customer satisfaction will be created.

Customer service to satisfaction

Customer service is an important factor that has been shown by many studies to have a positive impact on customer satisfaction (Zeithaml et al., 2002; Park & Kim, 2003; Norizan & Abdullah, 2010). In our study also proved this issue to be true. To explain this, we believe that online purchases for specialty agricultural products, especially vegetables, soy products or products with a short shelf life will be risky during transportation. Therefore, if businesses have a good customer care system, they can improve customers' awareness of how to store, use time and many other issues to help customers get good quality products. In addition, timely overcoming risk problems (such as returning damaged goods) will bring customers' trust, thereby bringing satisfaction to customers.

Information quality to satisfaction

Information is the first content customers approach to evaluate many aspects, such as the quality of products and systems such as products, service quality of suppliers, quality of software products, equipment system design, quality of human-computer interaction. So customers will base on this initial information to compare with their own needs and decide whether to use the product or not. These are also the basis for them to set their initial expectations, if the results after purchasing the product, the customer evaluates it correctly with what they receive from the information provided, it will bring satisfaction

to the customer. client. Besides, finding specific and easy information also attracts customer engagement at an early stage. On the contrary, if the information is difficult to find or the information is inflated, making customers' initial expectations too high, it will make customers distrust the web, which adversely affects the success of the business.

5. CONCLUSIONS AND RECOMMENDATIONS

Online service quality is a multidimensional concept, in each different field, the way to determine their impact is different. The purpose of this study is to measure the influence of factors in online service quality on customer satisfaction when participating in online transactions for local specialty agricultural products. By using the linear structural model SEM, the research has identified factors such as information quality, product quality, web quality, product price, system response, delivery and service. Customer service has a statistically significant positive impact on customer satisfaction. Besides, the study also found a relatively strong positive relationship of customer satisfaction with customer loyalty. In addition, the study also showed that education, income and living area have a statistically significant relationship to both satisfaction and loyalty. From these conclusions, the study makes a number of recommendations to improve customer satisfaction when shopping online for local specialty agricultural products as follows:

Firstly, businesses need to focus on and improve the responsiveness of e-commerce sites, the responsiveness needs to improve in both aspects that are responsive to the diversity of product availability and responsiveness. in the ability to pay and secure user information. In addition, the web interface design needs to be optimized towards user-friendliness.

Customer satisfaction increases when they are exposed to a website that is easy to use and capable of making transactions quickly. The posted information must be accurate, detailed and specific, absolutely not exaggerated or misleading, these things make the gap between reality and customers' initial expectations increase. up.

Second, businesses need to strengthen their ability to meet customer needs through providing quality products as well as prompt delivery. Customers will be satisfied when they can find all kinds of products they want to buy on a good quality e-commerce site with full safety certifications, can be traced and receive products quickly. This emphasizes the importance of product barcodes, reputable product selection and transportation of e-commerce businesses.

Third, e-commerce allows customers to make transactions 24/7 anywhere, so problems related to transactions can arise at any time, customers will be satisfied with e-commerce sites. whom they can contact when needed. Therefore, e-commerce sites should focus on developing direct customer support channels such as via phone or online chat. Businesses need to focus on customer care after purchase so that they can respond to and overcome risks to products during transportation and delivery.

Fourth, customers will feel secure that their interests are always taken care of and guaranteed, so e-commerce businesses need to have adequate compensation policies when there are problems in the process of performing transactions or shipping. Freight. the return of products should be conducted in the direction of simplifying the procedure and convenient for customers.

Fifth, local specialty agricultural products are products with specific regions, cultural and historical values because businesses need to combine products with cultural experiences, customs and stories about

local history to enhance the value of products, promote culture, thereby promoting people's sense of conservation, promoting the unique features of the region, thereby creating brands for brands. product.

Sixth, the main customers of e-commerce for specialty agricultural products are those who live in big cities, economic centers, people with high education and income, so businesses need to have market development policy to attract this target customer group. However, these subjects also have very high requirements for service quality, so in order to satisfy and retain customers, improving service quality is considered a vital issue for e-commerce businesses.

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